

# Alcatel-Lucent 9900 Wireless Network Guardian



Wireless service providers around the globe are beginning to experience significant subscriber uptake of their wireless data and broadband services. This growth is driven in large part by the growing popularity of IP-enabled cell phones, laptop aircards, and new data pricing plans that make wireless data access affordable by the consumer market. This uptake in services increases service provider revenue, however, Alcatel-Lucent and service providers worldwide understand transmitting IP packet data and IP applications places many different types of load on wireless networks, and are evolving the design and operation of wireless networks to efficiently and optimally accommodate these loads.

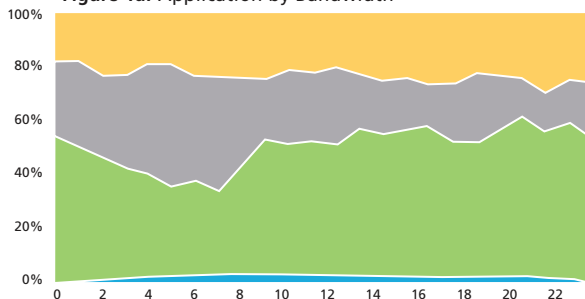
To illustrate, Figure 1a depicts the normalized bandwidth consumed by applications running on a commercial wireless network. By comparison, Figure 1b depicts the same applications on the same day relative to the cellular airtime consumed in the network to support these loads.

Today's monitoring and packet inspection products allow wireless service providers to monitor subscriber and application usage behavior on their network (Figure 1a)

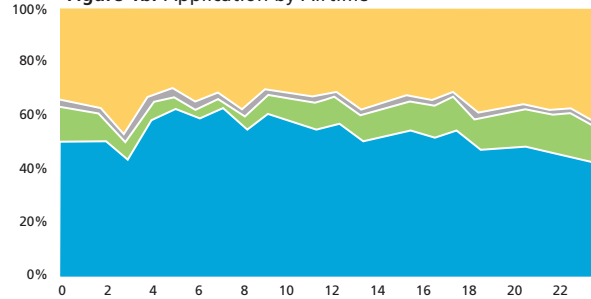
— but they don't translate this into wireless resources (Figure 1b).

The Alcatel-Lucent 9900 Wireless Network Guardian enables a paradigm shift in network operation and management for wireless operators. It allows wireless service providers to associate individual subscriber behavior to resource consumption at every layer and element in a wireless data path in real time (Figure 2).

**Figure 1a. Application by Bandwidth**

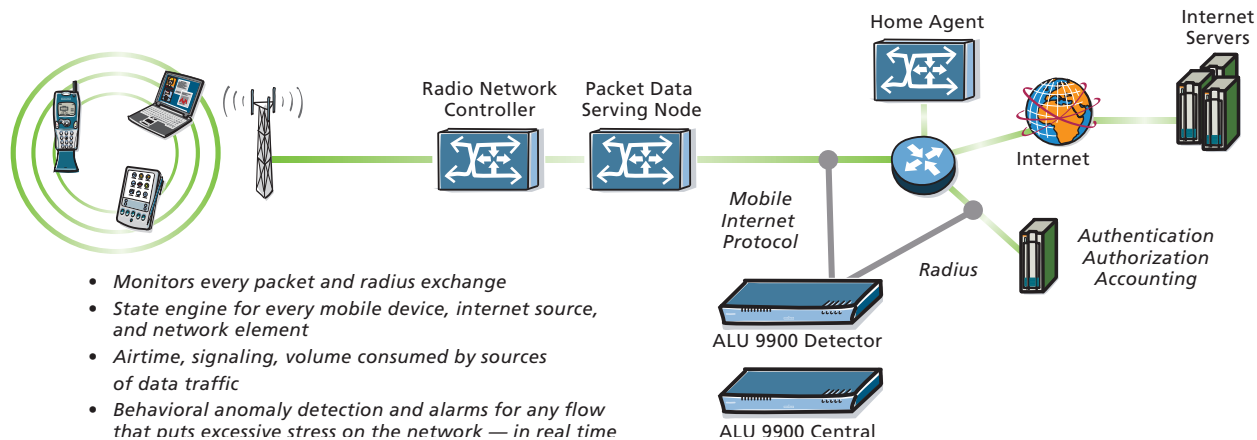


**Figure 1b. Application by Airtime**



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Figure 2. Alcatel-Lucent 9900 WNG Tracks Behavior at the Subscriber and Network Level



By connecting individual subscribers to resource consumption, the Alcatel-Lucent 9900 helps service providers manage the effects IP-based applications have on wireless networks. IP applications in use today were not designed with wireless data network constraints in mind, and as a result, can easily and unexpectedly burden the radio access network. In fact, subtle changes in the transmission characteristics of wireless data sessions can have a profound impact on network performance.

With the Alcatel-Lucent 9900, service providers can ensure they make the best possible use of their network and the precious air spectrum between the network and the mobile endpoints.

## How It Works

The Alcatel-Lucent 9900 is built with two components: a detector and a central.

The detector monitors data and radius traffic that is mirrored from within the packet core of a 3G/4G network. It generates “events” based on observed behaviors. It also generates a new flow record, which is a wireless-specific net-flow record, which is a subscriber-specific net-flow record, appended with context specific to wireless data networks. The deployed detectors securely communicate this information to the central, which provides GUI-access to the detectors, reports, forensics, and control.

## Value

This information is proving invaluable for wireless service providers on many levels:

- **Operations** — It allows service providers to determine which subscribers, servers, and applications are the most significant contributors of non-value-add traffic and load on the network.
- **Planning** — It enables service providers to establish a baseline measurement of network use at the individual subscriber level, allowing more accurate predictions of network capacity trends.
- **Engineering** — It ensures packet transmissions from devices and networks are consistent with design, and are not being sent fraudulently.
- **Security** — It allows service providers to detect a new class of wireless-specific denial of service attacks targeted at the signaling layer and exhausting RF channels, as well as the mobile devices that are directly or surreptitiously participating in the attacks.
- **Marketing** — It helps service providers determine the network cost associated with supporting any given application, thereby enabling application-level ROI

### CONTACT

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